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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,366	03/01/2004	Christopher F. Lyons	H1596	9354
45305	7590	12/15/2005	EXAMINER	
RENNER, OTTO, BOISSELLE & SKLAR, LLP (AMDS)			BLUM, DAVID S	
1621 EUCLID AVE - 19TH FLOOR			ART UNIT	
CLEVELAND, OH 44115-2191			PAPER NUMBER	
			2813	

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

10/790,366

Applicant(s)

LYONS ET AL.

Examiner

David S. Blum

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 10-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-20 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/21/04</u> . | 6) <input type="checkbox"/> Other: ____. |

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This is in response to the election filed 9/15/05.

DETAILED ACTION

Election/Restrictions

1. Claims 10-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the paper filed 9/15/05.

2. Applicant's election with traverse of claims 1-9 in the paper filed 9/15/05 is acknowledged. The traversal is on the ground(s) that no grounds were recited. This is not found persuasive because no grounds were recited.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Tan (US006001706).

Tan teaches all of the positive steps of claims 1-9 as follows.

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Regarding claim 1, Tan teaches a semiconductor substrate (10), a polish stop layer (13), a nitride containing layer (14) on the polish stop layer, forming a shallow trench (trench 1, layer 18) layer through a portion of the nitride containing layer, a portion of the polish stop layer, and a portion of the semiconductor substrate (figure 8A), removing the nitride containing layer by CMP (column 5 lines 53-57), and planarizing the shallow trench layer and the polish stop layer until the surfaces are co-planar (column 5 lines 53-57 and figure 10B).

Regarding claim 2, a barrier layer (12) is formed over the substrate.

Regarding claim 3, an aperture is etched through the nitride containing layer to expose a portion of the polish stop layer (column 4 lines 50-67, the multilayer (14,13, and 12 are etched. An opening (aperture) must be made in a portion of the nitride layer in order to etch an opening in the polish stop layer).

Regarding claim 4, a trench (1) is formed through the polish stop layer and the substrate and oxide (18) is deposited to form the layer (column 5 lines 47-49).

Regarding claim 5, the polish stop layer is polysilicon (column 4 line 27).

Regarding claim 6, the polish stop layer is polysilicon (column 4 line 27).

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Regarding claim 7, the polish stop layer (13) is oxidized to form a field oxide (16' figure 8A).

Regarding claim 8, the nitride layer is Si₃N₄ column 4 lines 41-42).

Regarding claim 9, a liner (16) is formed between the semiconductor substrate and the shallow trench layer.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Blum whose telephone number is (571)-272-1687) and e-mail address is David.blum@USPTO.gov .

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr., can be reached at (571)-272-1702. Our facsimile number all patent correspondence to be entered into an application is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David S. Blum

December 12, 2005